

Quick look at EMCal Matching and E/p distribution for electrons from Run 7 Lvl2 data

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Disclaimer

- First look by non expert at Run7 e-id parameters
- This means more **questions** than answers
- Variables shown in this presentation :
 - Matching in phi at EMCal : emcdphi
 - Matching in zed at EMCal : emcdzed (backup)
 - E/p, where **E=ecore** and p=mom (**Okay to use ecore?**)
- No recalibrator applied, ONLY raw distributions
- No condition on electron triggers (ERT)
- Only pt dependence is shown here
 - Integrated over all EMCal sectors.

Dataset and code used

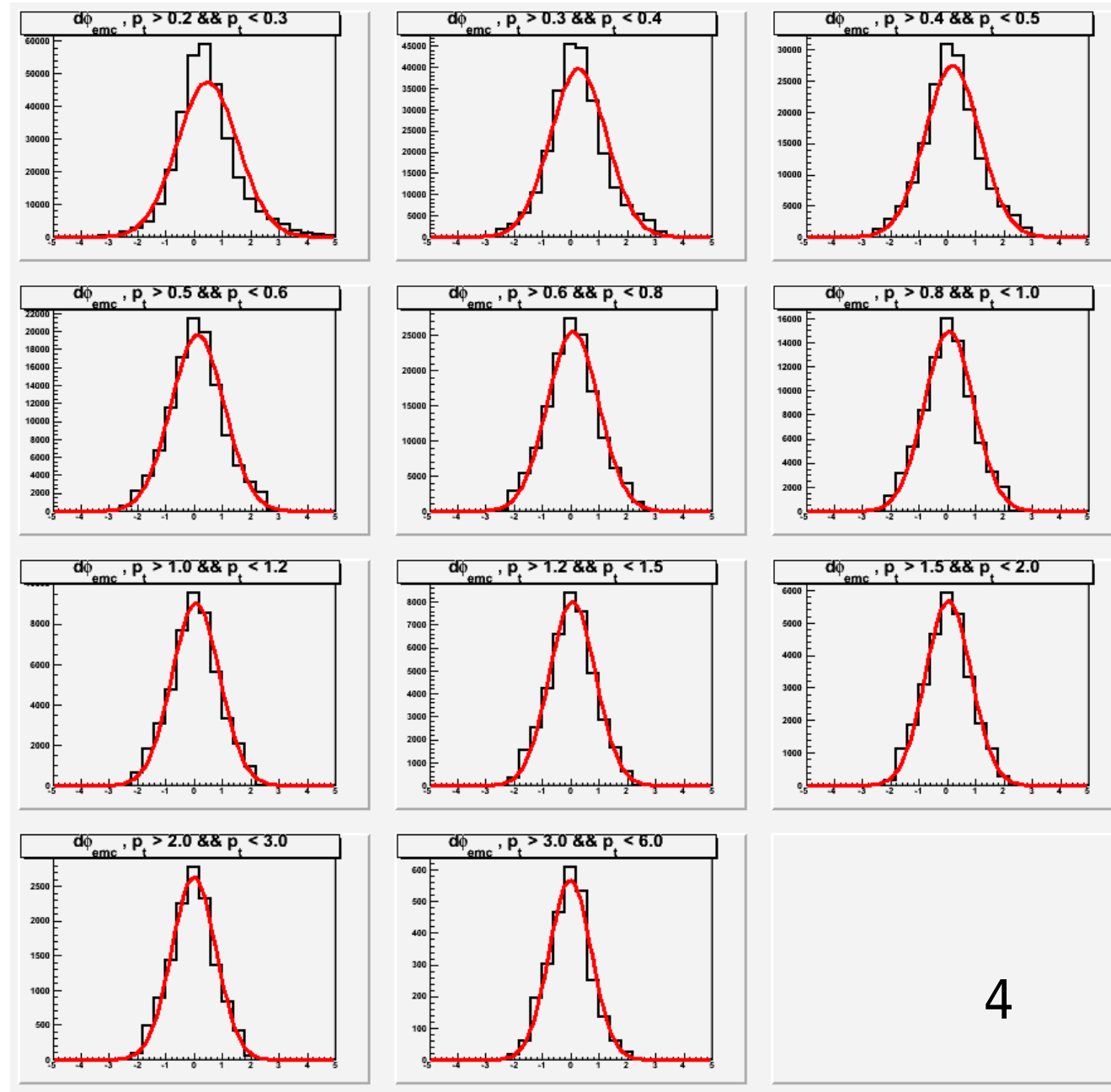
- File used was EWG, from CCF lvl2 production
 - As far as I could look, the only cuts in EWG are in reconstruction macros :

```
EWGcuts->set_vertexcut(50.);
EWGcuts->set_eoverpmin(-9999.);
EWGcuts->set_eoverpmax(9999.);
EWGcuts->set_emcPhicut(9999.);
EWGcuts->set_emcZcut(9999.);
```

 - Are there any other cuts?
 - Ok to use EWG?
 - Are there any RICH based cuts applied to EWG?
 - Is it right to use EWG? CWG lvl2?
- EWG's were filtered to make compact single electron ntuples using code inspired by Sergey Butsyk's work :
 - http://www.phenix.bnl.gov/viewcvs/offline/analysis/single_e/

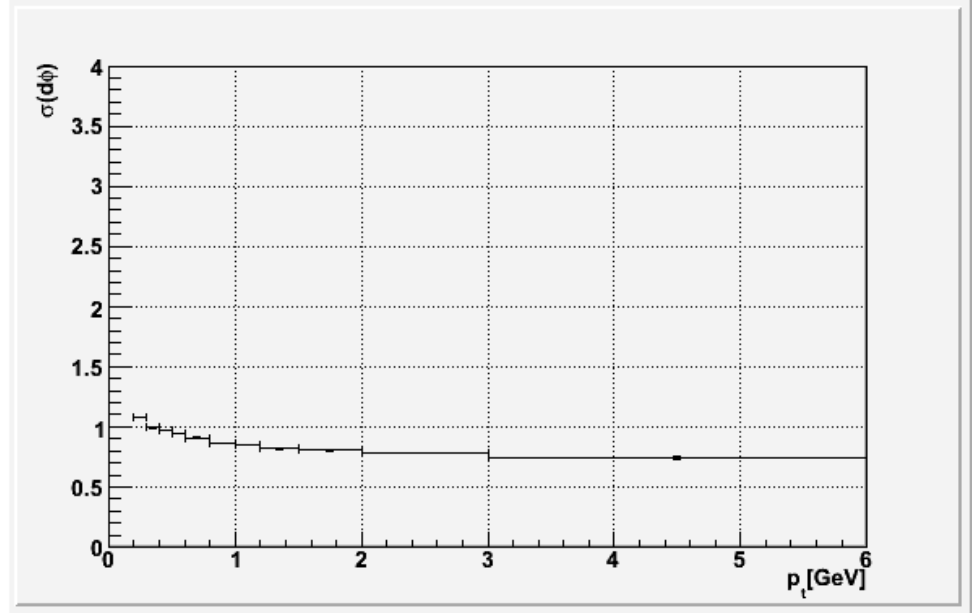
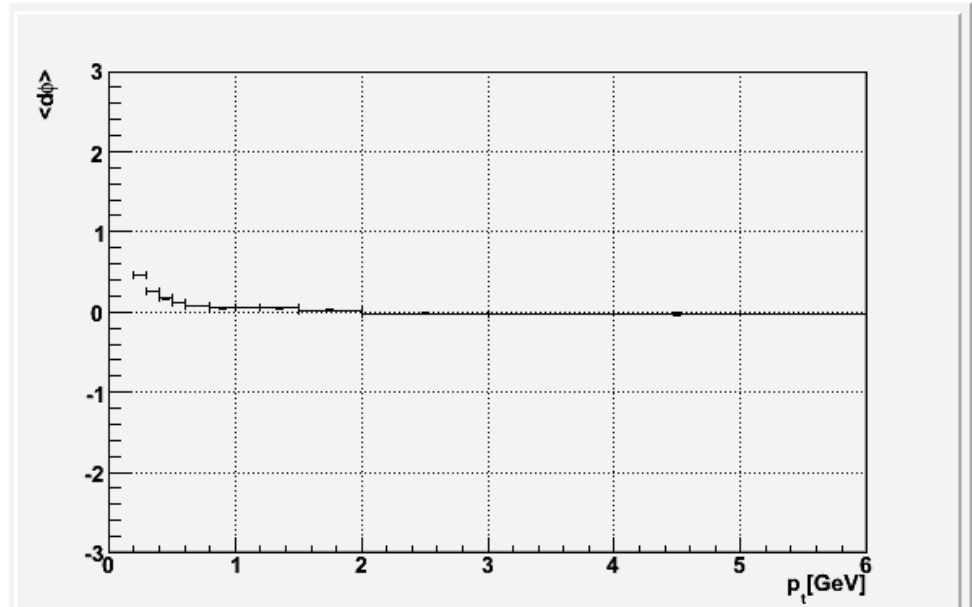
Fitting emcdphi distribution

- RICH cut
 - $n_0 \geq 4$
 - Other eid cuts were not used
- similar plot for dzed in backup



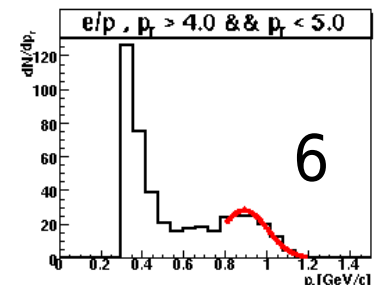
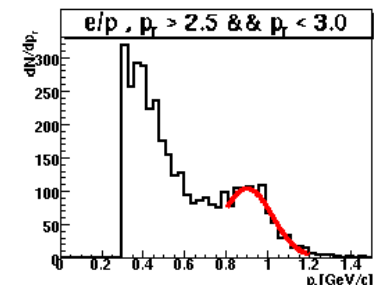
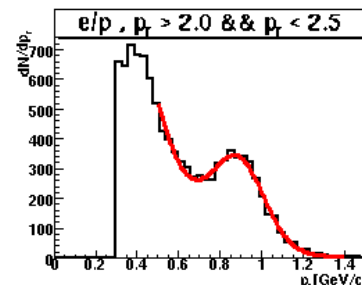
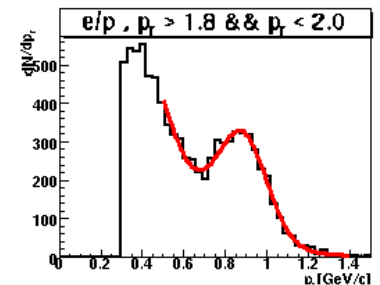
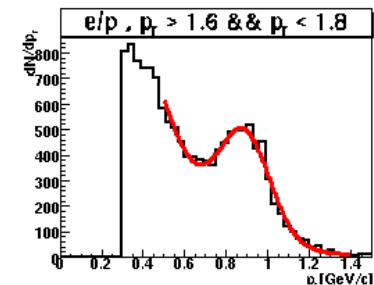
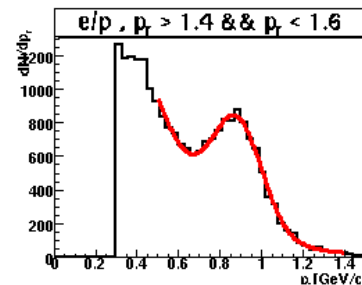
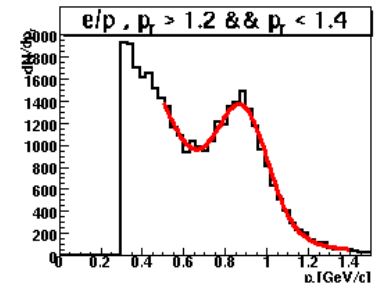
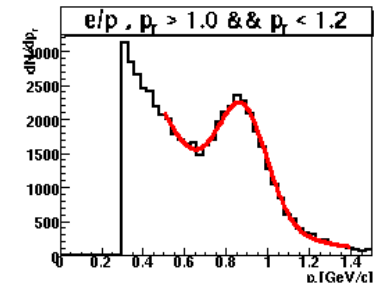
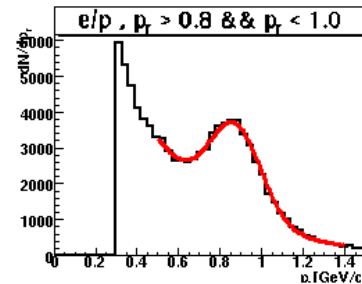
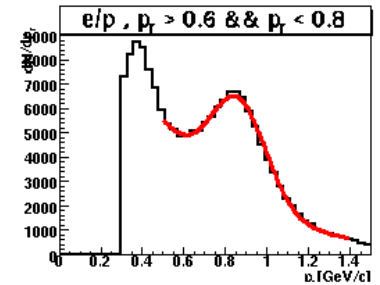
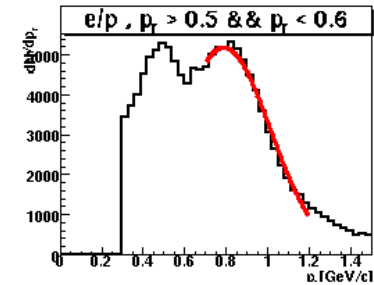
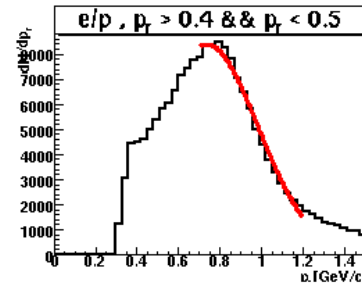
emcdphi vs. pt

- It's my understanding that emcdphi should be sigmalized as function of :
 - EMC sector
 - momentum
 - zed and alpha
- Any other varialbes?
- Any ordering to follow for iterations?
-



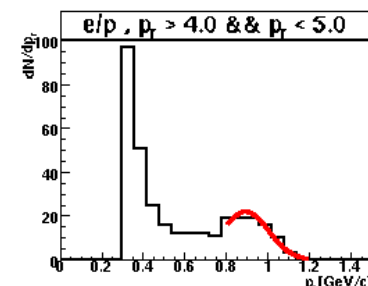
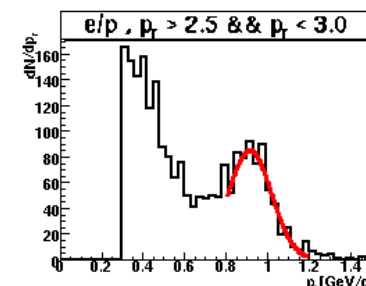
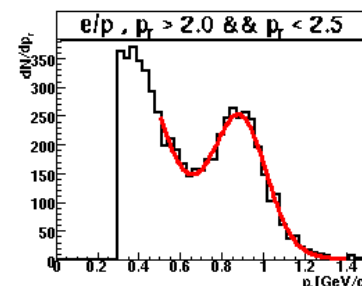
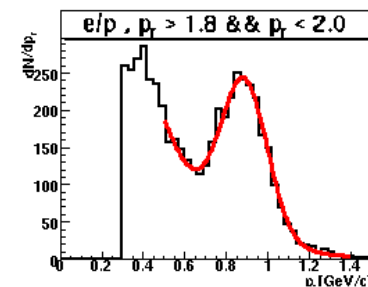
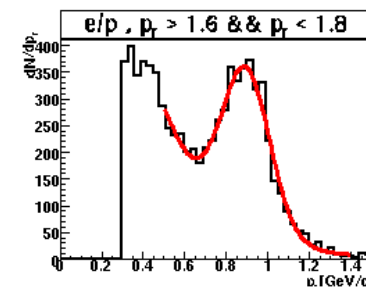
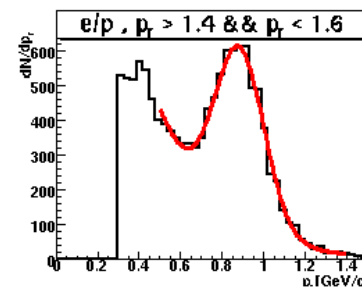
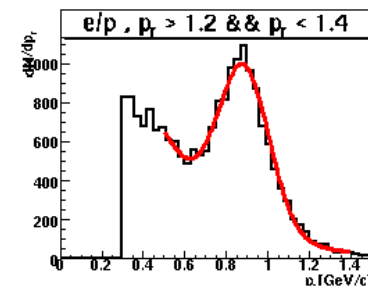
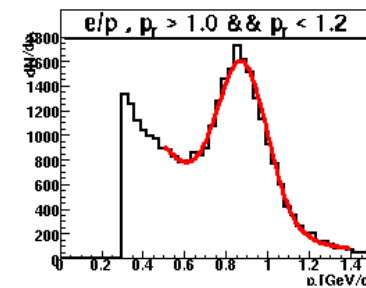
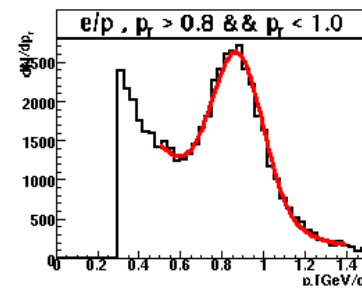
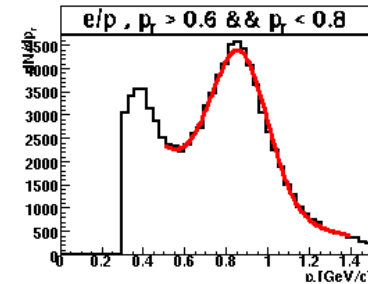
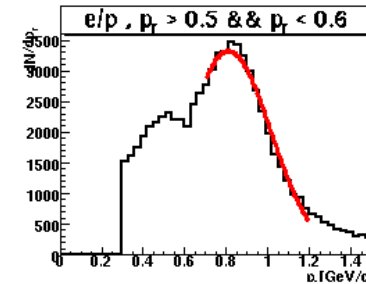
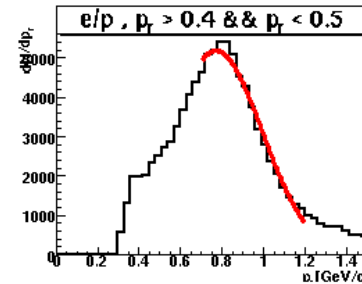
Fitting E/p distributions (1/2)

- With RICH cut
 - $n_0 \geq 3$
 - Fits are exponential + gaussian



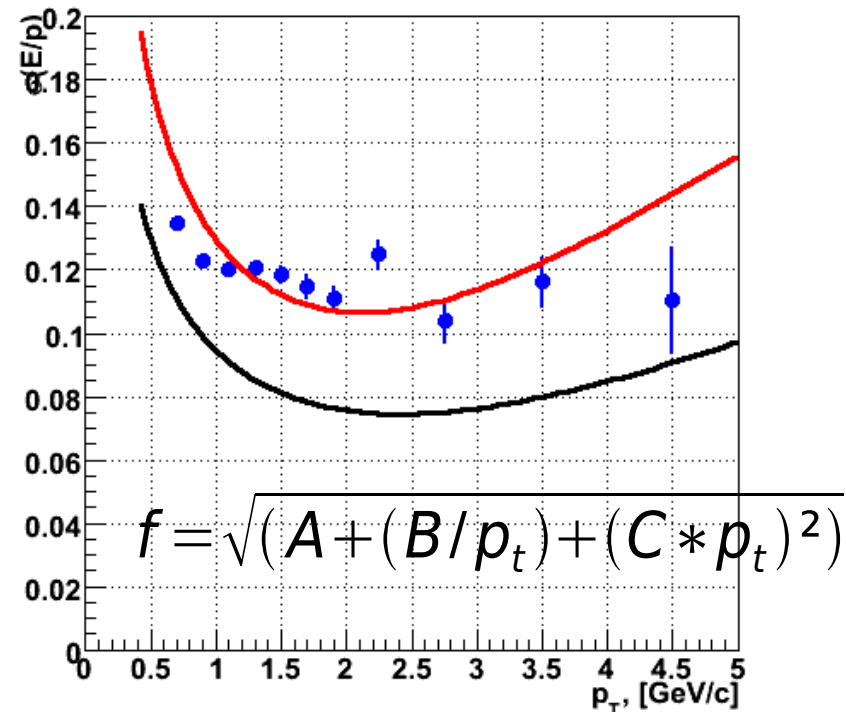
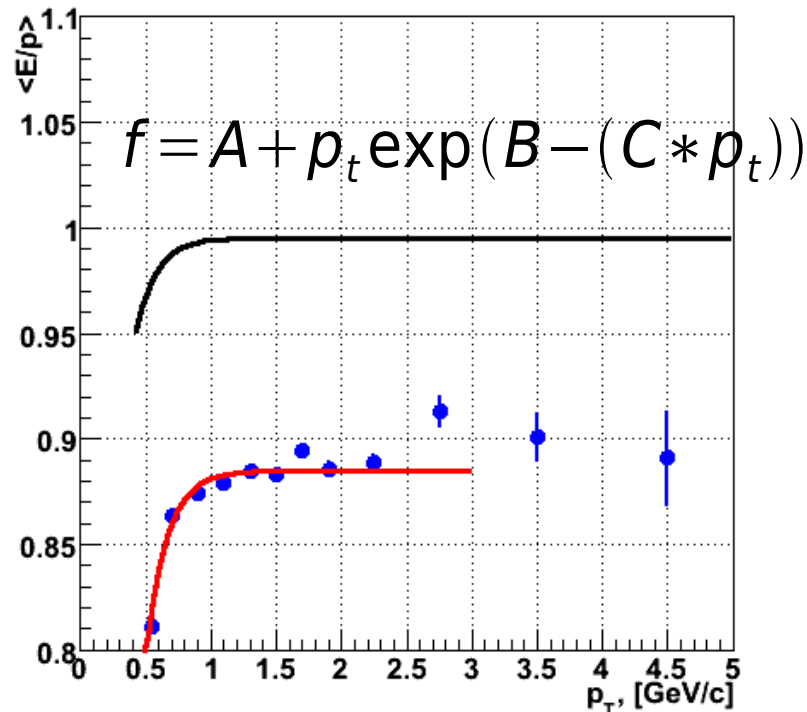
Fitting E/p distributions (2/2)

- Tighter RICH cut
 - $n_0 \geq 4$
 - Fits are exponential + gaussian
 - Rejection is bad : will have to wait until emcsdphi and emcsdz are done



E/p vs p_t

- The observed E/p is off it's value. ($n_0 > 4$)
 - I don't understand where this can come from
 - wrong variable used (ecore??)?
 - Pre recalibration of ecore needed?
 - Red : fit to current data, Black : An357



Conclusion

- I'll be off for three weeks from this friday, so I can't take care of this during this time.
- This is a very naive first look. Things may be faster and more correct in expert's hands.
- I'll continue at my return, if work is still pending.
 - Need to do this work sector by sector
- Filtering & plotting codes from Surgey Butsyk
- Relevant notes : (an266, an357, an419, an420)

back up

- emcdzed

